

Trend Study 25C-18-98

Study site name: Allen Canyon.

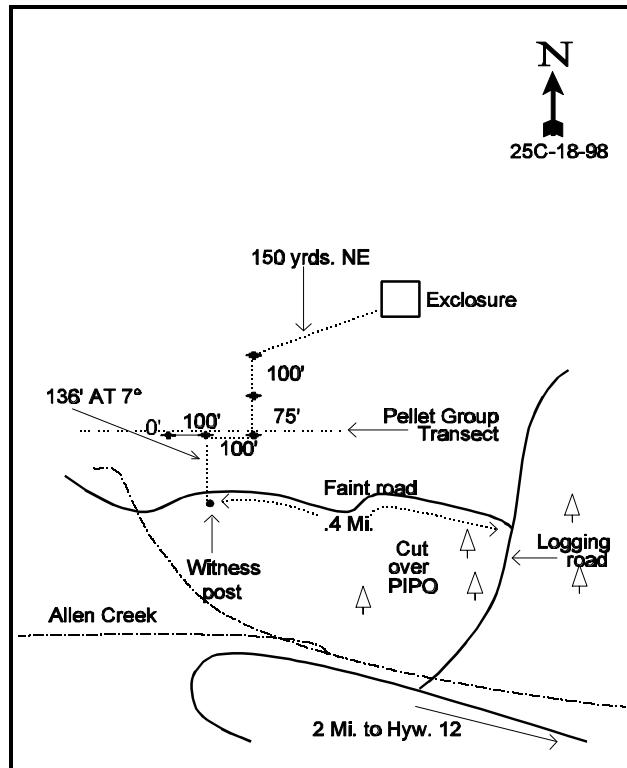
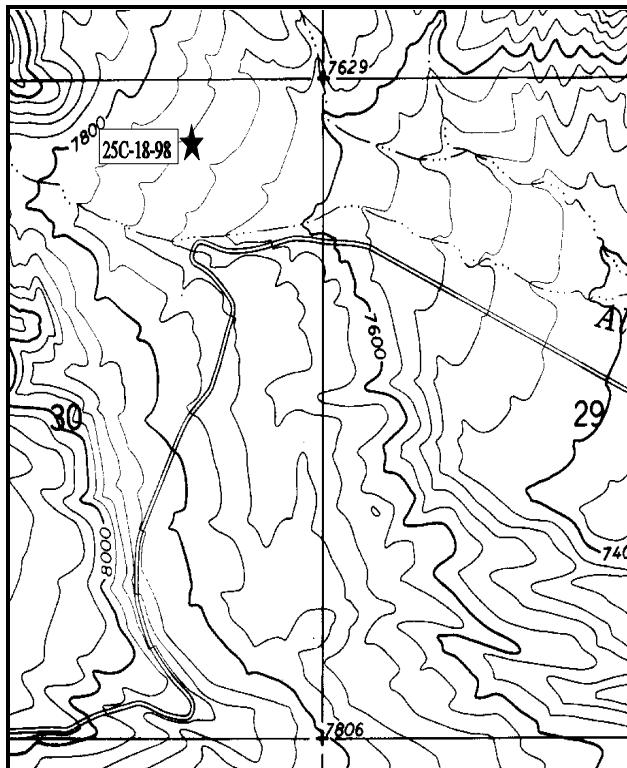
Range type: Mixed Mountain Brush.

Compass bearing: frequency baseline 100 degrees.

Footmark (first frame placement) 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From mile marker #49 on SR 12 west of Escalante, continue 0.8 miles southwest to a dirt road on the right with a stop sign and sign to Allen Canyon. Turn right, go across two cattleguards. From the second cattleguard and gate, go 2.1 miles to a fork. Turn right onto this logging road and go 0.1 mile to a very faint road on the left. Follow the faint road west for 0.4 miles. There is a fence post witness post marking the study location on the left side of the road. The 100-foot end of the baseline is 136 feet north. The 0-foot end of the baseline is not marked by a browse tag.



Map Name: Upper Valley

Township 35S, Range 1E, Section 30

Diagrammatic Sketch

UTM 4177138.258 N, 427019.874 E

## DISCUSSION

### Trend Study No. 25C-18 (51B-7)

The Allen Canyon trend study is in an open canyon that is dominated by ponderosa pine with a mixed mountain brush range type, which is used both in summer and winter by big game. Elevation is 7,700 feet, which is at the upper limits of deer winter range and in some years is unavailable due to heavy snows. Exposure and drainage of the area is to the southeast with a slope of less than 5%. Allen Creek starts in the precipitous slopes of the east side of the Table Cliff Plateau, which is the southern tip of the Aquarius Plateau. Pellet group data from 1998 estimate 15 deer, 5 elk, and 36 cow days use/acre. Cow sign appears to be from last fall. Elk and deer pellet groups appear to be between 2 and 4 months old. Rabbits also use the site and some black bear scat was found.

Soil depth to rock is variable, but overall it appears to be moderate with an effective rooting depth estimated at 12 inches. Texture is a sandy loam with a moderately acid pH (5.6). There is little rock or pavement on the surface. Protective ground cover, in the form of litter and vegetation cover, is abundant. Nearby, large gullies continue to erode, but on the study area there is little evidence of erosion.

The study is adjacent to the Allen Canyon timber sale, a shelter-wood type harvest done in 1987. The study site consists of an open canopy of second growth, 50-foot tall Ponderosa pines. The next layer is thick with oakbrush, Utah and Rocky Mountain juniper, and snowberry. Point quarter data from 1998 estimate 26 pinyon, 10 rocky mountain juniper, and 18 Ponderosa pine trees/acre. Average diameter is estimated at 6.6 inches for pinyon, 15.2 inches for juniper and 20.3 inches for Ponderosa pine.

As browse forage, the vigorous snowberry has received the most use. Many of the mature plants showed heavy hedging in 1987 and 1991. There were an estimated 3,799 snowberry plants/ acre in 1987, increasing to 4,399 in 1991. A much larger sample taken in 1998 estimates a smaller density of 2,520 plants/acre, which provide 30% of the browse cover. Density of mature plants has remained similar between years at around 2,000 plants/acre, but young plants show a steady decline. Currently ('98), utilization is light to moderate, vigor good and percent decadence low at only 2%.

Oak is also numerous and sprouting vigorously, except for a patch of sprouts which have not been browsed. Density of oak has also declined since 1987, but this is mainly due to the reduced number of young plants sampled. Density was estimated at 9,465 plants/acre in 1987, declining to 5,865 by 1991. Currently, there are an estimated 3,249 oak stems/acre which produce a cover value of 14% that represents 44% of the total browse cover. Some of the change in density and average height and crown measurements is due to the larger sample used in 1998. Photo point comparisons show oak increasing in size to about 4 to 5 feet in height.

Bitterbrush is relatively infrequent, contributing only 2% of the browse cover. The available plants displayed moderate hedging in 1987 and 1991, but current use is mostly light. Except for the increasers, broom snakeweed and prickly pear cactus, other browse species are even less common and unutilized.

Herbaceous plants are found in the open areas between trees and shrubs. Seven species of native grass were encountered with blue grama the most common. It provides 63% of the grass cover. The only other grass species which produces more than 1% cover is annual cheatgrass. Annuals were not included in past samples, although it is now fairly abundant and produces 24% of the grass cover. Forbs are diverse, yet only silvery lupine is common and provides 84% of the forb cover. Overall, density of forbs is relatively low.

### 1991 TREND ASSESSMENT

Soil trend is down with percent bare ground increasing from 13% to 20% and litter cover declining from 73% to 63%. Snowberry and bitterbrush would be considered the key species for the site. Both experienced

increases since 1987 of 14% for snowberry and 40% for bitterbrush. The increaser, broom snakeweed, decreased by 33%. Percent decadency for both key species increased. Browse trend would be considered stable. Overall trend for the herbaceous understory is slightly downward because only seven out of 25 species demonstrated any improved quadrat frequency values.

#### TREND ASSESSMENT

soil - stable

browse - stable

herbaceous understory - slightly downward

#### 1998 TREND ASSESSMENT

Trend for soil is up slightly with a decline in percent bare ground from 20% to 12% and a slight increase in litter cover. Trend for browse is considered stable with changes in density due partly to the larger sample used in 1998 which gives more accurate estimates for browse densities. Key species, bitterbrush, snowberry, and oak show lighter use, good vigor, and low decadence. Reproduction of oak and snowberry is poor, yet adequate to maintain their populations. Trend for the herbaceous understory is stable. Sum of nested frequency of perennial grasses has declined slightly, while frequency of perennial forbs has increased slightly. Nested frequency of the dominant forb, silvery lupine, has increased significantly from a value of only 12 to 96.

#### TREND ASSESSMENT

soil - up slightly

browse - stable

herbaceous understory - stable

#### HERBACEOUS TRENDS --

Herd unit 25C, Study no: 18

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover % '98
		'87	'91	'98	'87	'91	'98	
G	Agropyron intermedium	-	-	1	-	-	1	.00
G	Bouteloua gracilis	200	222	194	66	70	65	10.30
G	Bromus tectorum (a)	-	-	93	-	-	30	3.90
G	Carex spp.	5	2	1	2	2	1	.15
G	Oryzopsis hymenoides	-	8	3	-	3	2	.15
G	Poa fendleriana	a-	a7	b22	-	3	10	.59
G	Sitanion hystrix	b82	ab78	a48	39	36	23	.52
G	Sporobolus cryptandrus	8	21	11	3	10	5	.05
G	Stipa comata	b47	a10	b31	21	4	13	.58
Total Annual Grasses		0	0	93	0	0	30	3.90
Total Perennial Grasses		342	348	311	131	128	120	12.36
F	Agoseris glauca	a-	a-	b17	-	-	6	.22
F	Androsace septentrionalis (a)	-	-	4	-	-	2	.01
F	Arabis spp.	-	-	4	-	-	1	.03
F	Artemesia carruthii	14	4	12	8	2	5	.05

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover % '98
		'87	'91	'98	'87	'91	'98	
F	Astragalus humistratus	3	11	7	1	5	3	.06
F	Chaenactis douglasii	b14	b14	a-	6	5	-	-
F	Comandra pallida	b10	a-	a1	6	-	1	.03
F	Collinsia parviflora (a)	-	-	2	-	-	1	.00
F	Cruciferae	6	-	-	2	-	-	-
F	Erigeron flagellaris	ab11	b14	2	4	8	1	.00
F	Eriogonum racemosum	a3	a4	ab15	2	2	9	.25
F	Eriogonum umbellatum	-	-	3	-	-	1	.15
F	Gilia spp. (a)	-	-	9	-	-	4	.04
F	Holosteum umbellatum (a)	-	-	7	-	-	2	.03
F	Hymenoxys acaulis	5	3	-	2	1	-	-
F	Lappula occidentalis (a)	-	-	3	-	-	1	.00
F	Lathyrus pauciflorus	b13	a-	a-	5	-	-	-
F	Lepidium spp. (a)	-	-	11	-	-	6	.05
F	Lotus utahensis	-	10	2	-	6	2	.03
F	Lupinus argenteus	c133	a12	b97	58	9	41	5.60
F	Oenothera caespitosa	2	-	-	1	-	-	-
F	Petrorhagia pumila	-	-	4	-	-	1	.00
F	Phlox longifolia	b13	c33	a-	5	15	-	-
F	Polygonum douglasii (a)	-	-	13	-	-	5	.05
F	Sphaeralcea coccinea	b15	a3	a5	8	2	2	.01
F	Taraxacum officinale	1	-	-	1	-	-	-
F	Tragopogon dubius	11	8	1	6	5	1	.00
F	Unknown forb-perennial	3	2	-	1	1	-	-
Total Annual Forbs		0	0	49	0	0	21	0.18
Total Perennial Forbs		257	118	170	116	61	74	6.49

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

## BROWSE TRENDS --

Herd unit 25C, Study no: 18

T y p e	Species	Strip Frequency '98	Average Cover % '98
B	<i>Chrysothamnus nauseosus</i>	3	.03
B	<i>Chrysothamnus viscidiflorus</i> <i>viscidiflorus</i>	5	.00
B	<i>Eriogonum microthecum</i>	0	-
B	<i>Gutierrezia sarothrae</i>	52	2.48
B	<i>Juniperus scopulorum</i>	2	2.15
B	<i>Opuntia</i> spp.	8	.16
B	<i>Pinus edulis</i>	2	.76
B	<i>Pinus ponderosa</i>	2	1.88
B	<i>Purshia tridentata</i>	10	.57
B	<i>Quercus gambelii</i>	36	13.64
B	<i>Rosa woodsii</i>	4	.15
B	<i>Symphoricarpos oreophilus</i>	58	9.23
B	<i>Tetradymia canescens</i>	4	-
Total for Browse		186	31.08

## CANOPY COVER --

Herd unit 25C, Study no: 18

Species	Percent Cover '98
<i>Pinus ponderosa</i>	3

## BASIC COVER --

Herd unit 25C, Study no: 18

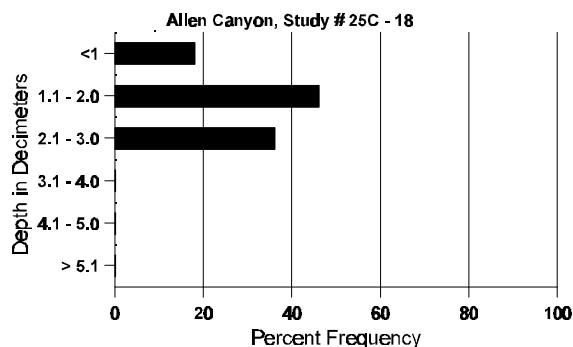
Cover Type	Nested Frequency '98	Average Cover %		
		'87	'91	'98
Vegetation	324	8.50	7.50	48.34
Rock	58	.50	1.25	.57
Pavement	187	6.00	8.00	4.41
Litter	399	72.50	63.25	69.63
Cryptogams	4	0	0	.03
Bare Ground	206	12.50	20.00	12.05

## SOIL ANALYSIS DATA --

Herd Unit 25C, Study # 18, Study Name: Allen Canyon

Effective rooting depth (inches)	Temp °F (depth)	pH	% sand	% silt	% clay	% OM	PPM P	PPM K	dS/m
11.8	59.8 (13.8)	5.6	75.1	8.4	16.6	4.1	9.5	86.4	.4

## Stoniness Index



### PELLET GROUP FREQUENCY --

Herd unit 25C, Study no: 18

Type	Quadrat Frequency '98
Rabbit	4
Elk	6
Deer	13
Cattle	9

### BROWSE CHARACTERISTICS --

Herd unit 25C, Study no: 18

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total										
		1	2	3	4	5	6	7	8	9	1	2	3	4													
<i>Chrysothamnus nauseosus</i>																											
Y	87	6	-	-	-	-	-	-	-	-	6	-	-	-	400		6										
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1										
M	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66	8 10	1										
	91	-	-	1	-	-	-	-	-	-	1	-	-	-	66	12 4	1										
	98	1	-	-	1	-	-	-	-	-	2	-	-	-	40	23 24	2										
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>															
'87		00%			00%			00%				-86%															
'91		00%			100%			00%				- 9%															
'98		00%			00%			00%																			
Total Plants/Acre (excluding Dead & Seedlings)												'87	466	Dec:	-												
												'91	66		-												
												'98	60		-												

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Chrysanthemus viscidiflorus viscidiflorus																	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	91	-	-	-	-	-	-	1	-	-	1	-	-	-	66		1
	98	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3
M	87	2	-	-	-	-	-	-	-	-	2	-	-	-	133	15 10	2
	91	-	-	1	-	-	-	-	-	-	1	-	-	-	66	4 3	1
	98	3	-	-	-	-	-	-	-	-	3	-	-	-	60	16 13	3
D	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	91	-	-	-	-	-	-	1	-	-	-	-	-	1	66		1
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'87	00%			00%			00%				- 1%					
	'91	00%			33%			33%				-29%					
	'98	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	199	Dec:	33%		
												'91	198		33%		
												'98	140		14%		
Eriogonum microthecum																	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0	8 14	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'87	00%			00%			00%									
	'91	00%			00%			00%									
	'98	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'91	0		-		
												'98	0		-		

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Gutierrezia sarothrae																	
S	87	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2
	91	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	98	21	-	-	-	-	-	-	-	-	21	-	-	-	420		21
Y	87	17	-	-	-	-	-	-	-	-	17	-	-	-	1133		17
	91	18	-	-	1	-	-	-	-	-	19	-	-	-	1266		19
	98	20	-	-	-	-	-	-	-	-	20	-	-	-	400		20
M	87	45	-	-	-	-	-	-	-	-	45	-	-	-	3000	8 5	45
	91	19	-	4	-	-	-	-	-	-	23	-	-	-	1533	6 5	23
	98	132	1	-	2	-	-	-	-	-	135	-	-	-	2700	12 13	135
D	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	98	7	-	-	-	-	-	-	-	-	2	-	-	5	140		7
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	80		4
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87	00%				00%			00%							-33%	
	'91	00%				10%			00%							+14%	
	'98	.61%				00%			03%								
Total Plants/Acre (excluding Dead & Seedlings)												'87	4199	Dec:	2%		
												'91	2799		0%		
												'98	3240		4%		
Juniperus scopulorum																	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	98	-	-	-	-	-	-	-	-	2	-	2	-	-	40	- -	2
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87	00%				00%			00%								
	'91	00%				00%			00%								
	'98	00%				00%			00%								
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'91	0		-		
												'98	40		-		

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Opuntia spp.																	
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	91	1	-	-	-	-	-	4	-	-	5	-	-	-	333		5
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	87	9	-	-	-	-	-	-	-	-	9	-	-	-	600		9
	91	-	-	-	1	-	-	3	-	-	4	-	-	-	266		4
	98	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-
	91	-	-	-	2	-	-	-	-	-	2	-	-	-	133	4	2
	98	6	-	-	-	-	-	-	-	-	6	-	-	-	120	3	6
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87	00%		00%		00%		00%		00%							-34%
	'91	00%		00%		00%		00%		00%							-55%
	'98	00%		00%		00%		00%		00%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	600	Dec:	-		
												'91	399		-		
												'98	180		-		
Pinus edulis																	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	98	1	-	-	1	-	-	-	-	-	2	-	-	-	40		2
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87	00%		00%		00%		00%		00%							
	'91	00%		00%		00%		00%		00%							
	'98	00%		00%		00%		00%		00%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'91	0		-		
												'98	40		-		
Pinus ponderosa																	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	98	-	-	-	-	-	-	-	-	2	-	2	-	-	40	-	2
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87	00%		00%		00%		00%		00%							
	'91	00%		00%		00%		00%		00%							
	'98	00%		00%		00%		00%		00%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'91	0		-		
												'98	40		-		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
S	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	87	1	1	-	-	-	-	-	-	-	2	-	-	-	133		2	
	91	-	2	-	-	-	-	-	-	-	2	-	-	-	133		2	
	98	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	87	-	1	-	-	-	-	-	-	-	1	-	-	-	66	24 28	1	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
	98	7	-	-	1	-	1	-	-	-	9	-	-	-	180	21 44	9	
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	2	-	-	1	-	-	-	-	3	-	-	-	200		3	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
	'87	67%				00%			00%							+40%		
	'91	100%				00%			00%							-16%		
	'98	00%				07%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	199	Dec:	0%			
												'91	333		60%			
												'98	280		0%			
Quercus gambelii																		
S	87	10	-	-	-	-	-	-	-	-	10	-	-	-	666		10	
	91	8	-	-	2	-	-	5	-	-	15	-	-	-	1000		15	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	87	73	48	-	-	-	-	-	-	-	121	-	-	-	8066		121	
	91	41	8	-	11	-	-	7	-	-	67	-	-	-	4466		67	
	98	18	-	-	-	-	-	-	-	-	18	-	-	-	360		18	
M	87	16	-	-	-	-	-	-	-	-	16	-	-	-	1066	98 47	16	
	91	2	1	-	5	-	-	5	-	-	13	-	-	-	866	110 45	13	
	98	109	4	-	28	-	-	-	-	-	141	-	-	-	2820	41 37	141	
D	87	5	-	-	-	-	-	-	-	-	5	-	-	-	333		5	
	91	2	-	-	5	-	-	1	-	-	8	-	-	-	533		8	
	98	-	3	-	-	-	-	-	-	-	-	-	-	-	60		3	
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
	'87	34%				00%			00%							-38%		
	'91	10%				00%			00%							-45%		
	'98	04%				00%			02%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	9465	Dec:	4%			
												'91	5865		9%			
												'98	3240		2%			

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total									
		1	2	3	4	5	6	7	8	9	1	2	3	4												
<b>Rosa woodsii</b>																										
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	98	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3									
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0									
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0									
	98	9	-	-	-	-	-	-	-	-	9	-	-	-	180	14	15									
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>														
			'87			00%			00%			00%														
			'91			00%			00%			00%														
			'98			00%			00%			00%														
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-											
												'91	0	-	-											
												'98	240	-	-											
<b>Syphoricarpos oreophilus</b>																										
S	87	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3									
	91	1	1	-	-	-	-	1	-	-	3	-	-	-	200		3									
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1									
Y	87	19	11	1	-	-	-	-	-	-	17	-	14	-	2066		31									
	91	8	4	1	5	-	-	4	-	-	22	-	-	-	1466		22									
	98	18	4	-	1	-	-	-	-	-	23	-	-	-	460		23									
M	87	8	6	9	-	-	-	-	-	-	22	-	1	-	1533	16	23									
	91	10	10	8	2	2	-	1	-	-	33	-	-	-	2200	20	33									
	98	43	32	-	25	-	-	-	-	-	100	-	-	-	2000	17	100									
D	87	-	1	2	-	-	-	-	-	-	3	-	-	-	200		3									
	91	-	3	5	-	3	-	-	-	-	6	-	4	1	733		11									
	98	3	-	-	-	-	-	-	-	-	-	-	-	3	60		3									
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2									
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>														
			'87			32%			21%			26%						+14%								
			'91			33%			21%			08%						-43%								
			'98			29%			00%			02%														
Total Plants/Acre (excluding Dead & Seedlings)												'87	3799	Dec:	5%											
												'91	4399	-	17%											
												'98	2520	-	2%											

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Tetradymia canescens																	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
M	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66	11 16	1
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	98	2	1	-	-	-	-	-	-	-	3	-	-	-	60	10 11	3
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	91	-	-	1	-	-	-	-	-	-	1	-	-	-	66		1
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'87	00%			00%			00%				+ 0%					
	'91	00%			100%			00%				+18%					
	'98	25%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	66	Dec:	0%		
												'91	66		100%		
												'98	80		0%		